User's Manual of CAEN SY527 High Voltage System

- PHENIX-TOFHV configuration for Run 2000-

(last update : May 29, 2000)

1. Overview

This online user's manual describes the standard control sequence of CAEN SY527 multi-channel high voltage crate for PHENIX Time of Flight (TOF) Counter. During Run 2000, TOF High Voltage System is controlled and monitored through serial RS232 port. In the following sections, we describe how to operate CAEN SY527 from the beginning, such as booting the crate and how to modify the parameters of each high voltage channel. You do not have to follow all the ways presented here, because TOF HV experts, as listed in section 8, set up proper voltages in advance. For the shift crew, it is only needed to monitor the preset voltages and currents of each HV channel, as described in section 6.

There are 4 HV crates to supply high voltage to TOF (2 crates both on North and South side each on the 4th floor of East carige). These crates are connected though the serial port to the PC at the counting house, dedicated to CAEN SY527. By the terminal on this PC, all 960 high voltage channels are contolled and monitored to operate 1920 PMTs of TOF.

2. Main power, air blowers and temperature monitors

(1) Main power of SY527

The system can be powered on by turning the key, clock wise (Local ON is enabled) on the front panel of SY527 HV crate.
It should be turn ON for all 4 HV crates before the Interaction Region (IR) closed by TOF HV experts.

(2) TOF air blowers

Before the operation of HV from the terminal at the conting house, the air blowers of TOF must be turned ON. It is very important because the air blower is the only cooling system for TOF system, and scintillators in TOF counter are very framable material. The shif crew shoud alway keep in mind that the status of TOF air blowers, when the TOF HV is ON. There are two main swiches and current monitors (of air blower's motors) for E0 and E1 sector on the PHENIX Contral ROOM (PCR 0.2). Red ligh is ON, and green ligh is OFF. In normal operation of blowers, the values of current should be 1.9 A for both sectors, indecated on the monitors (see also RUN-00 online manual for the graphycal view).

(3) TOF teperature monitors

On the PC for LV control of all subsystems, there are also TOF tempratere monitor as shown in Fig. 1. When TOF HV is on, the temperature indicated in this monitor should be monitored by the shift crew. The nominal temperater is almost same that of air.

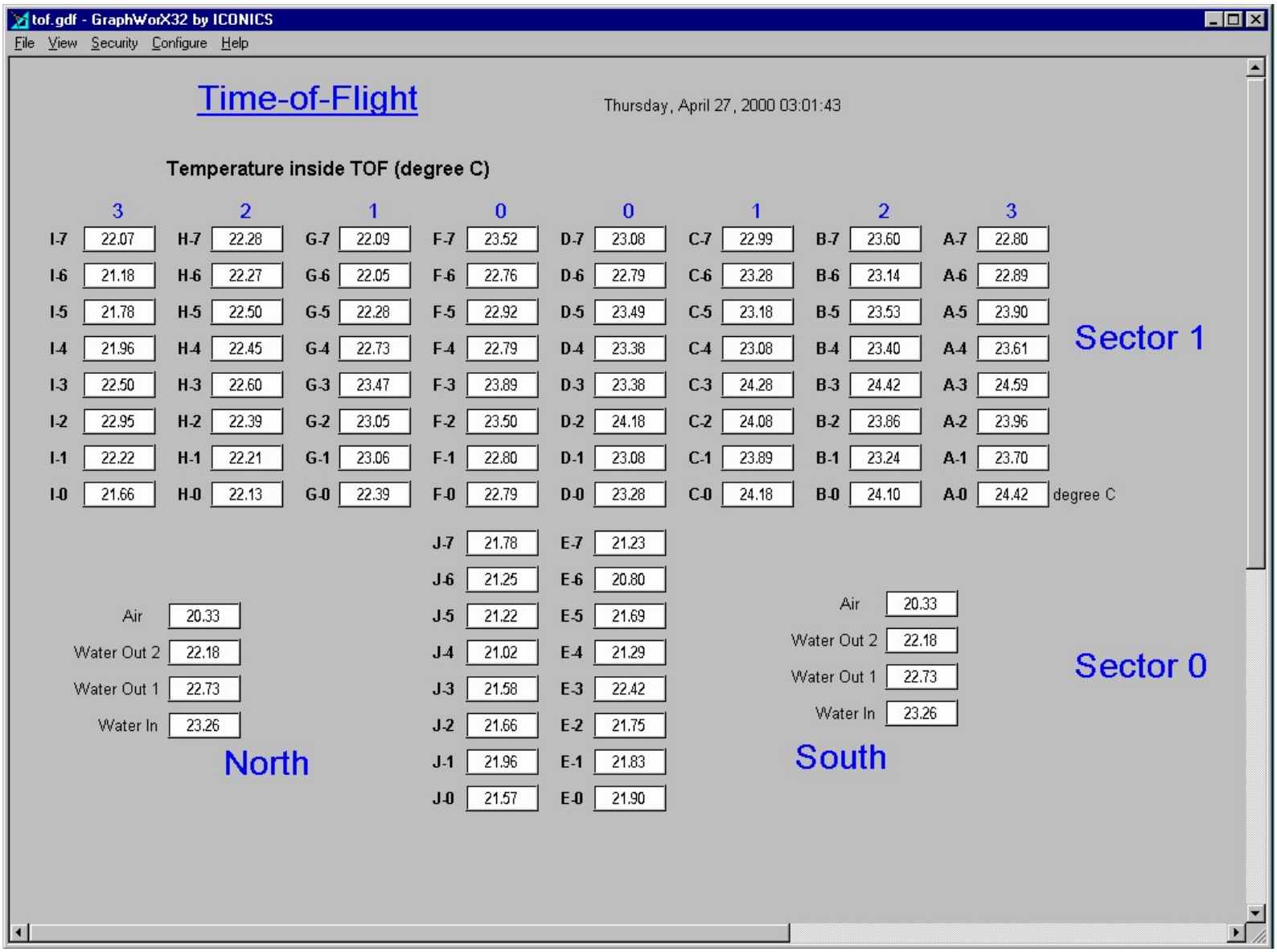

Fig. 1. TOF tempreture monitor.

3. Main menu

After the SY527 system powered on, the logo "C.A.E.N. SY527" comes on the serial terminal as shown in Fig. 2.

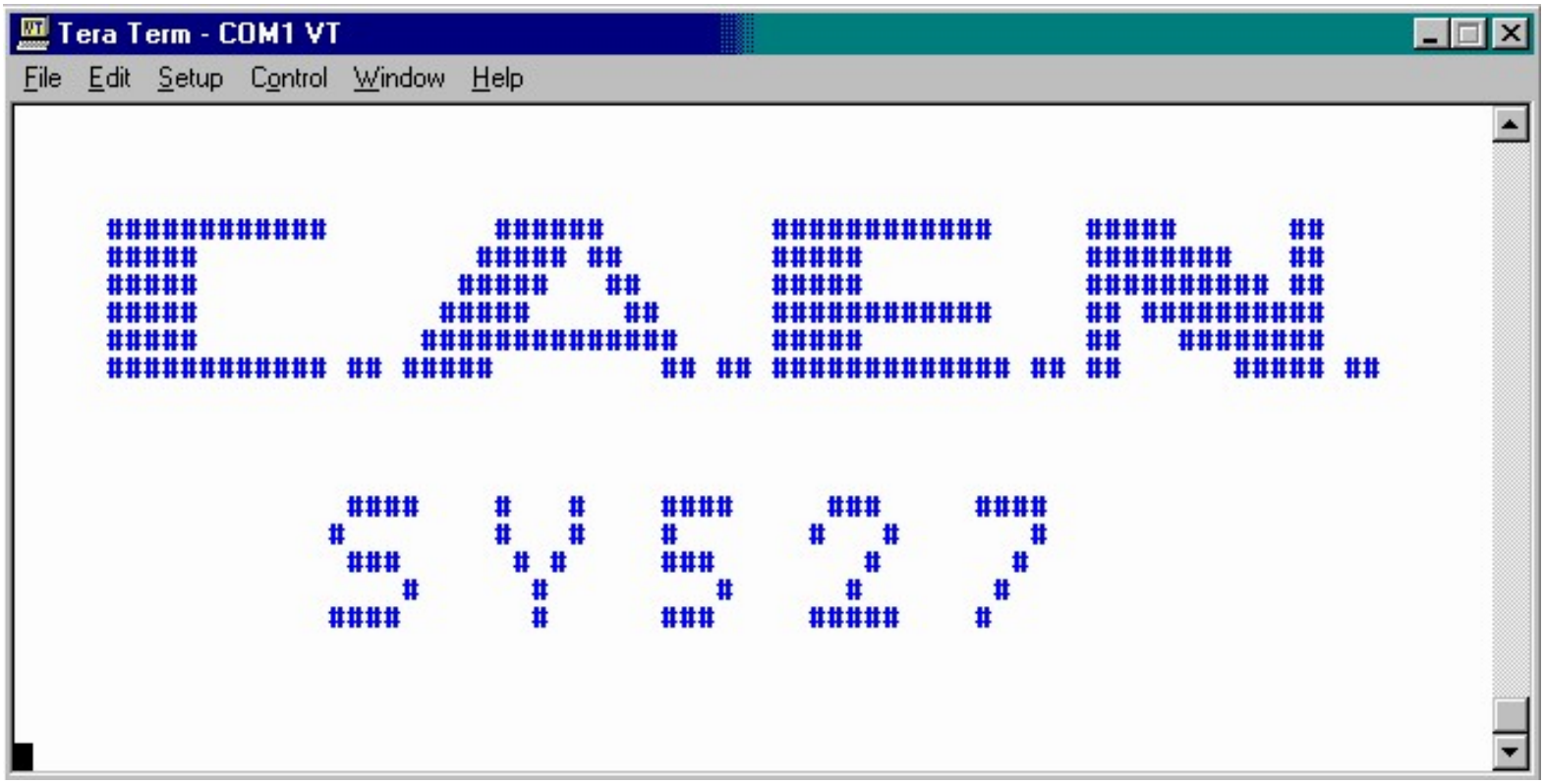

Fig. 2. CAEN SY527 Logo

By typing any key, the "Main Menu" is appeared as Fig. 3. On this screen, "D" (to display the selected crate), "C" (to connect to new crate) and "Q" (to abandon program) is the only nesseray comand for the shift crew.

```
C.A.E.N.        SY527        V3.18                    Crate 42


M A I N   M E N U

Display             Display/Modify channels
Protections         Set/Reset password
Crate               Connect a new crate
Map                 Crate map
Kill                Kill all channels
Alarms              Reset alarms
Status              Select type of alarm
Format              Reformat EEPROM
Upgrade             Firmware Upgrade via RS232
Quit                Abandon program


Select item
```

Fig. 3. Main menu of CAEN SY527 system.

4. Display channel status

By typing "D" in the Main Menu, the statsus and parameters of 16 channels are shown as Fig. 4. To show the next 16 channels, press "N" (next command). To show the previous 16 channels, press "P" (previous command). To change the crate, press "Q" (quit command), and then press "C" (to connect new crate) and input the crate number (from 01 to 04) on the main menu. **Do not enter "C" on the display mode, it cause change the vaules of parameters.**

Each of the high voltage parameter is selected by the cersol and can be modified by typing the new value on this screen. But again, do not modify any parameters because these have already been set by TOF HV experts.

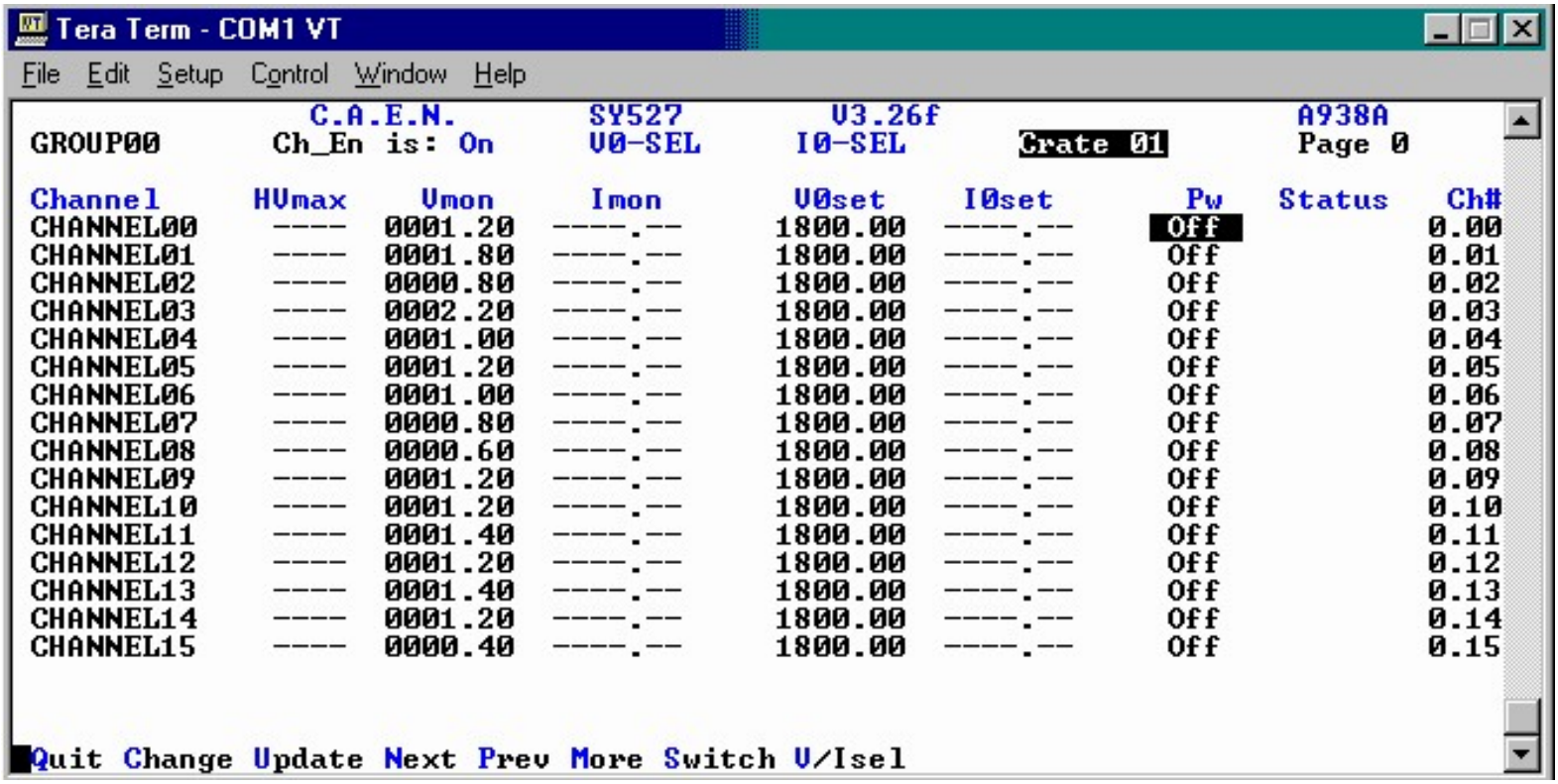

Fig. 4. Display mode

On the top in the display screen, the following parameters are shown:

1) Group name "GROUP00" (by default)
2) Status of the "CH_EN" (ON/OFF)
3) Type of voltage and current limit (by default, V0SEL and I0SEL, respectively)
4) Crate Number (from "Crate01" to "Crate04")
5) Page Number

On this display mode, the following parameters are shown for each channel:

Channel	Channel name
Hvmax	Maximum voltage setting (by default is -)
Vmon	Voltage value to be monitored
Imon	Current value to be monitored. "CHANNEL24" only (main channel)

V0set	voltage value to be set
I0set	current value to be set
Pw	Status of "ON/OFF" of the channel. By typing "1", the selected channel is On. Typing "0" is OFF.
Status	Status of channel
CH#	Board and channel number (e.g. "0.15" is borad "0", channel "15")

In the second screen which are shown by typing "M" (more), the following parameters are shown for each channel, **but it is not nesseray for the shift crew.**

Channel	channel name
SVmax	software programmable maximum voltage value (if this value is less than V0SET, then V0SET takes this value)
Rup	rump up rate of the voltage
Rdwn	rump down rate of the voltage
Trip	time in sec for which the over current are permitted
PrOn	priority ON
PrOff	priority OFF
Pon	power-On status
Password	status of the channel protection
On/Off	status of the On/Off channel protection (if the Password is disabled, it is possible to modify every value of parameters)
CH#	Board and channel number

5. Commands on display mode

Use only commnads "Q" (quit), "N" (next) and "P" (previous) on the display mode by shift crew.

"Q" (Quit)	quit and return to the main menu
"C" (Change)	change the value of parameters
"U" (Update)	update the display
"N" (Next)	show the next page
"P" (Previous)	show the previous page
"M" (More)	show detail status for the same channles

6. What should be monitored by the shift crew

The channels to be monitor are as folowing.

- Vmon values of "CHANNEL00" to "CHANNEL23" for all boards and crates ("CRATE01" - "CRATE04") : in normal operation, HV -1800 Volt is set
- Vmon values of "CHANNEL24" : in normal operation, HV -1850 Volt
- Imon values of "CHANNEL24" for all boards and crates ("CRATE01" - "CRATE04") : ~15 mA at HV -1800 Volt
- TOF air blowers current for E0 and E1 sectors : 1.9 A in normal operation

- TOF temperature monitor : almost same as air temperature
- TOF LV control (see PHENIX Year 2000 Run Manual)

7. More information

- PHENIX TOF OPERATION IN THE PEH (No. PP-2.5.2.8-03)
- Channel Number for Cosmic Ray Trigger (TOF ID, HV and FEM ID)
- PHENIX Run-00 Online Manual

8. TOF HV experts call list

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